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What is a Computer Program?

- A computer program is a set of instructions which tells a computer to perform a particular task.

Types of Programming Methods

- Structured Programming
- Object Oriented Programming
- Event - Driven Programming

Popular Programming Languages

- Fortran
- COBOL
- Basic
- C++
- Java

Levels of Programming Languages

- Natural Languages
- High - Level Languages
- Low - Level Languages
- Assembly Language
- Machine Language

The Typical Steps of Programming

- (1) Define the Problem
- (2) Design a Solution
- (3) Develop an Algorithm
- (4) Code the Program
- (5) Test the Program
- (6) Document the Program

Programming Terms

Algorithm

An algorithm is a step - by - step procedure to solve a problem or to perform some task.

Syntax

The rules governing grammar usage for a programming language.

Compiler

Translates program code into the language of a computer.

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Pseudocode

Not actually a programming language, but English - like statements which are used to develop an algorithm or a program.

Top - Down Design

An algorithm development style whereby the sequence of steps is started from the top and then broken down into smaller parts which are addressed separately.

Interpreter

Converts each high - level language statement into machine language.

Examples of Pseudocode

Pseudocode to find the average of 5 numbers

Set the sum of the values to zero
Set a count of the values to zero
Do as long as the count is less than or equal to 5
 Read the next data value
 Add this data value to the sum
 Add 1 to the count
Divide the sum by 5 to compute the average
Print the average

Pseudocode to compute employee net pay

Enter the employee's name
Enter the number of hours worked
Enter the hourly wage
If number of hours worked ≤ 40 then
 gross pay = hours worked * hourly wage
If the number of hours worked > 40 then
 gross pay = hours worked * hourly wage
 + 1.5 * (hours worked - 40) * hourly wage
Enter the taxes
net pay = gross pay - taxes
Print the employee's name and the net pay

Types of Programming Control Structures

Sequence Control Structure

a group of program instructions followed in order from the first through the last

Selection Control Structure

is used to make logical decisions

Repetition Control Structure

is a looping mechanism which allows a group of steps to be repeated several times, usually until some particular condition is satisfied